Merced to Fresno Section of the California High-Speed Train System

Highlights of Draft Environmental Impact Report/Statement

Introduction and Background

The "Merced to Fresno" and "Fresno to Bakersfield" documents are the first project-level environmental impact documents for the California High-Speed Train (HST) System, the first over 200 mph high-speed rail project to be implemented in the nation. They kick off a formal period for public comment that will help shape the ultimate path of California's HST in the Central Valley.

When California voters passed Proposition 1A in 2008 to provide state funding for the California HST, they acknowledged that the state's roads and airports can no longer keep up with its growing population and that, with its speed, capacity, and connectivity, the HST System would provide travelers with a viable alternative for moving throughout California.

California's HST System would provide intercity, high-speed service on more than 800 miles of track, connecting the major population centers of Sacramento, the San Francisco Bay Area, the Central Valley, Los Angeles, the Inland Empire, Orange County, and San Diego. It would use state-of-the-art, electrically powered, steel-wheel-on-steel-rail technology to operate trains at up to 220 miles per hour over a fully grade-separated, dedicated track, using advanced safety, signaling, and automated train-control systems. It would provide predictable and consistent travel times, work well—and relieve capacity struggles—with existing transportation systems, and remain sensitive to California's unique natural resources.

California's current intercity transportation system, including in the Central Valley, cannot meet existing and future travel demands. Without the proposed project, transportation system congestion will lead to deteriorating air quality, reduced reliability, and increased travel times. The interstate highway system, commercial airports, and conventional passenger rail serving the intercity travel market are operating at or near capacity and will require large public investments for maintenance and expansion to meet existing demand and future growth. The feasibility of expanding many major highways and key airports is uncertain; some needed expansions might be constrained by physical, political, or other factors.

Statewide, over the next two decades, California's HST System would alleviate the need to spend more than $100 billion[1] to build 3,000 miles of new freeway, 5 airport runways, and 90 departure gates to meet the transportation needs of a growing population. In fact, the San Joaquin Valley is projected to grow at a rate higher than any other region in California. Three counties—Merced, Madera, and Fresno—are projected to grow by 68% by 2035.

The Merced to Fresno Section, which includes two HST stations, plays a critical role in forming the "backbone" of a statewide system. Since work began on this section, the California High-Speed Rail Authority (Authority), which bears responsibility for this project, has held nearly 150 local meetings and 44 additional public and technical working group meetings. These meetings included public informational meetings; elected official, community organizations and stakeholder briefings; special meetings with agricultural groups, tribal leaders, and other groups; and transportation/planning agency working groups.

The Merced to Fresno Section Draft Project EIR/EIS builds upon work completed earlier in a broader, statewide environmental impact analysis. That first analysis provided the Federal Railroad Administration (FRA) and the Authority with the means to evaluate the overall HST System and make broad decisions about general alignments and station locations for further study. This Draft EIR/EIS is a more detailed look at the section between Merced and Fresno, one of nine sections of the total HST system.

[1] *California High Speed Train Program Environmental Impact Report/Environmental Impact Statement Capital and Operation and Maintenance Costs*, prepared for the California High Speed Rail Authority and the US Department of Transportation Federal Railroad Administration. January 2004. pp 4-5, and Appendices A through D. *The Engineering News Record* cost indices of August 2004, 2010 and 2011 were used to update the 2003 estimates to 2011.

Alternatives

The Merced to Fresno Section Draft EIR/EIS evaluates three basic HST alignment alternatives: the UPRR/SR 99 Alternative, BNSF Alternative, and Hybrid Alternative (which combines elements of the other two alternatives). As shown in Figure 1, these alternatives would extend between and include the proposed Downtown Merced Station and Downtown Fresno Station.

The environmental studies also contemplate a "No Project Alternative" for comparison as required by law. The No Project Alternative represents the state's transportation system (highway, air, bus, conventional rail) as it is currently and would be after implementation of programs or projects that are projected in regional transportation plans (RTPs), have identified funds for implementation, and are expected to be in place by 2035, as well as major planned land use changes. It does not include high-speed rail.

This Draft EIR/EIS also evaluates five heavy maintenance facility (HMF) site alternatives: Castle Commerce Center, Harris-DeJager, Fagundes, Gordon-Shaw, and Kojima Development. Figure 1 shows the HMF sites.

Projected growth and conversion of land to urbanized uses between 2010 and 2035 are anticipated to have a much greater environmental effect than the HST project in the study area. Under the No Project Alternative, the total population of the three-county area is expected to grow to approximately 2.3 million, which is an increase of about 68%, or over 930,000 new residents, and 93,000 acres of land development. This is larger than the geographic size of the city of Fresno, which is about 72,000 acres, and about 1/14th the size of Merced County. Additionally, this development is anticipated to follow current patterns dispersed along the edges of city growth boundaries and into unincorporated areas along highways.

The annual vehicle-miles traveled for the three-county region is projected to increase from 35 million to almost 50 million by 2035. This is over a 40% increase in travel. This increase would require the use of an estimated 1 billion gallons of petroleum in the Merced to Fresno region alone.[2] Demand for energy would also increase at a level commensurate with population growth under the No Project Alternative, which would require additional generation and transmission capacity.

HST Alternatives Evaluation

The HST project would reduce daily automobile travel and would therefore reduce fuel consumption, congestion, and air pollution and lead to better travel times. The HST also would provide an alternative to commercial air travel within California, reducing air travel miles and related fuel consumption and pollution. The HST project would increase electricity consumption compared to the No Project Alternative. However, since the HST system would provide a more energy-efficient mode compared to automobile and air transportation, the HST project would result in a relative decrease in energy consumption. Furthermore, the Authority has adopted policy goal of using 100% renewable energy to power the HST vehicles. The HST stations would have the benefit of encouraging high-density transit-oriented development in Merced and Fresno, revitalizing the downtown areas of these cities and discouraging the urban sprawl that, among other things, consumes large amounts of agricultural land.

Comparison of HST Alternatives

Each of the HST alternatives could have significant and unavoidable impacts on the following resources: air quality; noise and vibration; biological resources; communities; farmland; parks; aesthetics and visual resources; and cultural resources. Some mitigation measures, such as those for noise, visual resources, and parks, will be decided upon in coordination with local communities, whose input can influence the mitigation. For example, if a community decides against a sound barrier, the noise effect would remain significant.

[2] Bureau of Transportation Statistics. 2010. *The Nation's Freight*. Available at http://www.bts.gov/publications/freight_in_america/html/nations_freight.html. Research and Innovative Technology Administration, Bureau of Transportation Statistics. Accessed October 22, 2010. Washington, DC. 2010. Based on the 2007 national average fuel economy for passenger and other two-axle, four-tire vehicles.

Figure 1
Merced to Fresno Section Alternatives and Design Options

Specifically, the following impacts would remain significant to varying degrees after mitigation is applied. Air quality would be affected during construction. Noise could affect properties in some locations. Various segments of the HST alternatives would affect biological communities, special-status species, habitats of concern, wildlife movement corridors, and wetlands and water courses protected under federal and state law. Every HST alternative would displace a homeless shelter in Merced. Farmland would be converted to nonagricultural use. Parks located in Merced County, Madera, and Fresno would be affected. Visual quality could be degraded in some areas of Le Grand, Chowchilla, Fairmead, Downtown Madera, Madera Acres, and Fresno. Historically significant structures would be affected, including resources listed on or potentially eligible for listing on the National Register of Historic Places.

Capital costs and some key areas with potentially significant project impacts prior to mitigation that differentiate among the HST alternatives are summarized below and shown on Table 1. For more information and details, please refer to the Merced to Fresno Section Draft Project EIR/EIS at the Authority website (www.cahighspeedrail.ca.gov).

Capital Costs: Generally, the UPRR/SR 99 Alternative would have considerably more elevated structures and urban area construction—and therefore would be the most expensive to build. The Hybrid Alternative would have the shortest length of elevated track among the three alternatives and would be the least expensive.

Agriculture Lands: The UPRR/SR 99 Alternative would affect the fewest acres of Important Farmland and Williamson Act land but would affect the most Farmland Security Zone land (see Table 1, footnote #4 for definitions). The UPRR/SR 99 Alternative would cause the least severance of farmlands of all the HST alternatives. The BNSF Alternative would affect the most acres of Important Farmland and Williamson Act land but would affect the fewest acres of Farmland Security Zone land. The BNSF Alternative would cause the greatest severance of farmlands of all alternatives because more of the track would diverge from existing major transportation corridors.

Noise: The UPRR/SR 99 Alternative would have the greatest potential noise impacts, potentially having significant impacts to almost twice the number of residences compared to the BNSF Alternative and over three times as many as the Hybrid Alternative (with Avenue 24 Wye). The Hybrid Alternative would have the least potential noise impacts and affect the fewest residences.

Parks and 4(f): A 4(f) resource is a publicly owned land such as a park, recreational area, wildlife or water fowl refuge, or historical site having national, statewide, or local significance; 4(f) resources have special protections. Park impacts would be greater for the UPRR/SR 99 Alternative than for the BNSF and Hybrid alternatives and would include closure or use of three parks during construction and partial permanent acquisition of two parks. The preliminary least harm analysis indicates that the UPRR/SR 99 Alternative would have the greatest harm with respect to 4(f) resources of all of the alternatives and the Hybrid Alternative would have the least harm.

Cultural and Paleontological: The UPRR/SR 99 Alternative could affect the greatest number of archaeological resources and would affect the smallest acreage of geologic formations that could have paleontological resources such as dinosaur bones.

Biological Resources and Wetlands: The BNSF Alternative is the only alternative that would affect the Great Valley Conservation Bank (a mitigation bank) and federally designated critical habitat for five species associated with vernal pools. Most of the BNSF Alternative's design options would have greater effects on waters under U.S. Army Corps of Engineers jurisdiction than the UPRR/SR 99 Alternative or the Hybrid Alternative. The BNSF Alternative would affect more than twice as many acres of vernal pools and other seasonal wetland than the Hybrid Alternative and more than five times as many as the UPRR/SR 99 Alternative. The Hybrid Alternative would have a substantial effect on special-status plant communities, jurisdictional waters, Camp Pashayan, and wildlife movement within the Berenda Slough and Berenda Creek riparian corridors and in the Eastman Lake-Bear Creek migration corridor. The extent of these impacts is generally lower than for the BNSF Alternative and either greater than or similar to impacts associated with the UPRR/SR 99 Alternative.

Heavy Maintenance Facility Alternatives

The Castle Commerce Center HMF site would result in the highest number of affected street and roadway intersections in comparison to the other HMF alternatives. This HMF is the only one that could expose sensitive receptors—such as schools and homes without air conditioning—to diesel emissions that would exceed air quality standards after implementing measures to reduce them. This HMF alternative would require the acquisition of a homeless shelter in Merced and would result in the division of a mobile home community. Castle Commerce Center would require the acquisition of the entire Joe Stefani Elementary School property (14.5 acres). This HMF site would have the least impact on Important Farmlands. The Castle Commerce Center HMF site would potentially affect two archaeological resources.

The Harris-DeJager HMF site would result in the lowest number of intersection impacts. This site would permanently affect the Eastman Lake-Bear Creek ECA. The Harris-DeJager and Gordon-Shaw HMF sites would have the most Important Farmland conversion of all the HMF sites. The Kojima Development HMF site would permanently affect the

Berenda Slough riparian corridor and would affect one potential archaeological resource. The Fagundes and Gordon-Shaw HMF sites would have low impacts compared to the other HMF sites.

All the HMF sites would contain the same facilities to provide maintenance services for the HST System. An HMF at the Harris-DeJager, Fagundes, Gordon-Shaw, or Kojima Development sites would cost an estimated $660.8 million for full build-out. An HMF at the Castle Commerce Center site would cost about $1.067 billion because it would require an access track from the Downtown Merced Station.

Next Steps in the Environmental Process

The Authority and FRA are circulating the Merced to Fresno Section Draft Project EIR/EIS to affected local jurisdictions, state and federal agencies, tribes, community organizations, other interest groups, interested individuals, and the public. The document also is available at the Authority offices, public libraries in the study area, and on the Authority's website (www.cahighspeedrail.ca.gov). The Draft EIR/EIS will be circulated for a 45-day comment period, which begins August 15, 2011 and closes on September 28, 2011, and will include public hearings. Schedule information for public hearings and opportunities to comment are available on the Authority's website.

After considering public and agency comments, the Authority and FRA will identify a preferred north-south alignment alternative, a preferred site for each station, and a preferred HMF alternative. The Authority and FRA will prepare a Merced to Fresno Section Final Project EIR/EIS that will include responses to comments and a description of the preferred alternative and proposed mitigation. After the Final EIR/EIS has been developed and circulated, The FRA and Authority will make final approval decisions regarding the north-south alignment location and stations to be constructed. The FRA then will issue a Record of Decision (ROD) and the Authority will issue a Notice of Determination (NOD). The Authority and FRA will carry forward all east-west alignment alternatives and wyes to the selected north-south alignment (i.e. track connections) for further study and consideration as part of the San Jose to Merced Section EIR/EIS. A decision on the east-west alignments and associated wyes will be made in the future, at the conclusion of the San Jose to Merced Section EIR/EIS process.

The Authority and FRA anticipate identifying a preferred HMF site from among the HMF alternatives examined in the Draft EIR/EIS. The Authority and FRA are also considering HMF facility alternatives as part of the Fresno to Bakersfield Section EIR/EIS and anticipate identifying a preferred HMF facility from among the alternative in that EIR/EIS as well. A final decision on the HMF facility is anticipated to occur at a date later than the decisions on the north-south alignments and stations, based on the Authority's consideration of the preferred HMF alternatives from both the Merced to Fresno and Fresno to Bakersfield sections.

Project Implementation

After the issuance of the FRA's ROD and the Authority's NOD, the Authority would complete final design, pursue construction contracting, and acquire property prior to construction, as shown in Figure 2.

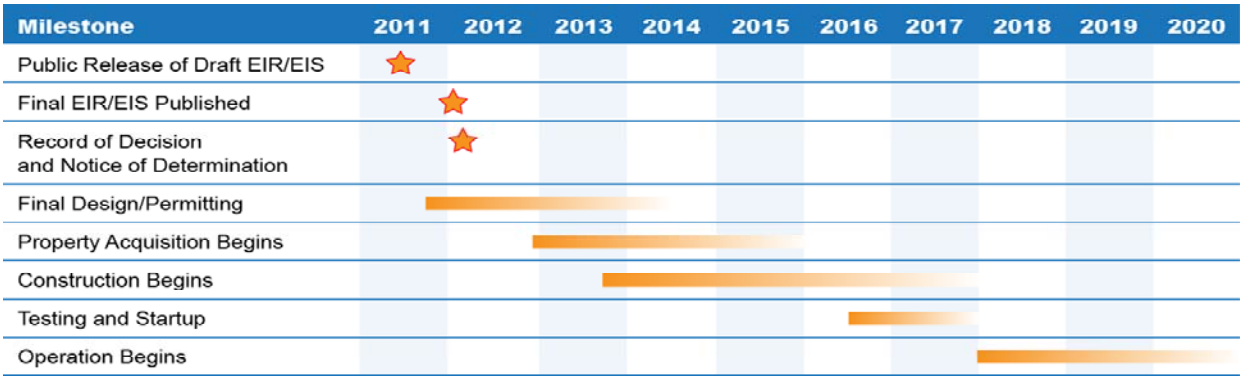

Figure 2
Next Steps Schedule

Table 1

Key Project Impacts That Differentiate Among the North-South HST Alternatives and Design Options

North-South Alignment Isolated and with Wye Design Option	HST Alternatives and Design Options							
	UPRR/SR 99 Alternative		Hybrid Alternative		BNSF Alternative			
					Mariposa Way Design Options		Mission Ave Design Options	
	East Chowchilla Design Option	West Chowchilla Design Option	East Chowchilla Design Option	West Chowchilla Design Option	Le Grand	East of Le Grand	Le Grand	East of Le Grand
PROJECT COSTS in Billion $								
With Ave 24 Wye	$6.94	$5.28	NA	$3.83	$4.81	$4.93	$4.86	$4.97
With Ave 21 Wye	$5.94	NA	$4.84	NA	$4.38	$4.51	$4.42	$4.54
NOISE [3]								
Number of Residences/Institutional Facilities Affected by Severe Noise Impacts								
North-South Alignment	762/3	874/4	367/1	239/1	362/1	370/1	364/1	373/1
With Ave 24 Wye	839/3	884/4	NA	220/1	456/1	464/1	458/1	467/1
With Ave 21 Wye	810/3	NA	419/1	NA	421/1	429/1	423/1	432/1
BIOLOGICAL RESOURCES AND WETLANDS								
Impacts on Waters of the US (aquatic communities)/Vernal Pools and Other Seasonal Wetlands/Great Valley Mixed Riparian and other Riparian Communities (acres)								
North-South Alignment	15/1/4	23/1/8	21/5/4	27/5/6	26/11/6	28/9/7	32/13/5	36/13/4
With Ave 24	28/1/11	33/1/16	NA	37/5/13	37/12/9	38/9/11	43/14/8	46/13/8
With Ave 21	31/2/5	NA	35/5/5	NA	35/12/7	36/9/8	41/14/5	44/13/5

[3] Severe Noise Impact – Under FRA criteria, this is defined on a sliding scale based on the existing noise levels. Lower existing noise levels allow the project to increase the noise levels more, while existing higher noise levels reduces the amount the project can raise the noise level. If existing noise levels are between 80 and 75 dBA, an increase of at least 2 to 3 dBA is a severe impact. If the existing level is 75 to 60 dBA, an increase of at least 3 to 5 dBA is a severe impact. If the existing level is between 60 and 55 dBA, an increase of 5 to 10 dBA is a severe impact. If existing levels are between 50 and 44 dBA, an increase between 10 and 15 dBA is considered a severe impact. For noise levels below 44 dBA, an increase of at least 15 dBA is considered a severe noise impact.

North-South Alignment Isolated and with Wye Design Option	HST Alternatives and Design Options							
	UPRR/SR 99 Alternative		Hybrid Alternative		BNSF Alternative			
					Mariposa Way Design Options		Mission Ave Design Options	
	East Chowchilla Design Option	West Chowchilla Design Option	East Chowchilla Design Option	West Chowchilla Design Option	Le Grand	East of Le Grand	Le Grand	East of Le Grand
AGRICULTURAL LANDS [4]								
Important Farmlands Affected/Williamson Act Land Affected / Farmland Security Zone Land Affected (acres)								
North-South Alignment	548/77/10	809/111/65	772/158/10	1,116/216/68	835/214/8	900/282/8	880/182/8	866/206/8
With Ave 24	1,037/130/50	1,116/171/91	NA	1,420/275/103	1,437/418/33	1,502/485/33	1,481/385/33	1,467/410/33
With Ave 21	1,158/270/61	NA	1,291/320/33	NA	1,411/471/28	1,476/538/28	1,456/438/28	1,442/463/28
POTENTIAL USES OF SECTION 4(f) RESOURCES DIFFERENTIATING AMONG HST ALTERNATIVES								
Number of Section 4(f) Uses – Park/Recreation Resources/Cultural Resources								
North-South Alignment	4/4	4/4	1/3	1/3	1/3	1/3	1/3	1/3
With Ave 24	4/4	4/4	NA	1/3	1/3	1/3	1/3	1/3
With Ave 21	4/4	NA	1/3	NA	1/3	1/3	1/3	1/3
PARKS, RECREATION, AND OPEN SPACE								
Number of Parks Affected by Full or Partial Acquisition During Operations								
North-South Alignment	3	3	1	1	1	1	1	1
With Ave 24	3	3	NA	1	1	1	1	1
With Ave 21	3	NA	1	NA	1	1	1	1

[4] Affected Farmlands – The EIR/EIS has analyzed temporary and permanent project-related impacts for the potential conversion of agricultural land to nonagricultural land uses. This includes impacts to existing agricultural operations, including, for example, farmland cultivation, irrigation systems, access roads, aerial spraying, and noise and vibration effects on adjacent farm animals. It also includes the severance of agricultural parcels, and indirect impacts on operations like dairies. The types of farmland analyzed in the EIR/EIS include the following:

- Important Farmland: Important Farmlands include Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance.
- Affected Williamson Act Properties: The EIR/EIS also analyzed project-related impacts to Williamson Act properties and the loss of protected farmland. Under the California Land Conservation Act of 1965—commonly referred to as the Williamson Act—local governments may enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments which are much lower than normal because they are based upon farming and open space uses as opposed to full market value.
- Affected Farmland Security Properties: Under the Williamson Act, participating land owners can also protect their farmland for a period of up to 20 years through the creation of a Farmland Security Zone.

North-South Alignment Isolated and with Wye Design Option	HST Alternatives and Design Options							
	UPRR/SR 99 Alternative		Hybrid Alternative		BNSF Alternative			
					Mariposa Way Design Options		Mission Ave Design Options	
	East Chowchilla Design Option	West Chowchilla Design Option	East Chowchilla Design Option	West Chowchilla Design Option	Le Grand	East of Le Grand	Le Grand	East of Le Grand
CULTURAL AND PALEONTOLOGICAL RESOURCES								
Number of prehistoric and historic-era archaeological resources affected during construction								
North-South Alignment	9	7	5	5	5	5	5	5
With Ave 24	10	10	NA	6	6	6	6	6
With Ave 21	10	NA	5	NA	6	6	6	6
Number of Historically Significant Built-Environment Resources Affected During Construction								
North-South Alignment	13	13	11	11	11	11	11	11
With Ave 24	15	15	NA	13	13	13	13	13
With Ave 21	14	NA	12	NA	12	12	12	12